

News and Views from the Literature

Kidney Stones

Hormone Replacement Therapy and Postmenopausal Stone-Formers

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Etiological Role of Estrogen Status in Renal Stone Formation

Heller HJ, Sakhaee K, Moe OW, Pak CY.

J Urol. 2002;168:1923-1927.

The authors conducted a retrospective study of adult calcium oxalate stone-formers who collected a 24-hour urine specimen after a week of a restricted diet that included 400 mg calcium and 100 mEq sodium per day with limited animal protein and oxalate consumption. They subsequently collected urine after an overnight fast and a calcium load as per the Pak protocol. There were 1050 men and 404 women, of whom 89 were postmenopausal; 39 of the latter were on estrogen replacement, whereas the other 50 were receiving no hormone therapy.

Urinary calcium, oxalate and uric acid excretion, calcium oxalate and brushite supersaturation, and the amount of undissociated uric acid were lower in the female cohort. However, urinary calcium excretion was equivalent in men and women after the age of 50, and citrate excretion was lower in women than in men after the age of 60. Twenty-four-hour urinary calcium excretion, fasting calcium excre-

tion, and postload calcium excretion were significantly lower in the estrogen-treated postmenopausal subjects as compared to those who were not receiving hormone replacement therapy. Although citrate excretion was higher in the postmenopausal subjects receiving estrogen therapy, this did not reach statistical significance. These findings are somewhat different from those reported by Dey and colleagues,¹ who found that postmenopausal stone-formers receiving hormone replacement had significantly higher calcium and citrate excretion as compared to those not receiving such therapy. The divergent results could be due to the subjects in the Dey study not being on a regulated diet.

In summary, the results of the study by Heller and associates may explain why stone disease is more prevalent in males as well as the increase in stone risk for females after menopause. The decreased calcium excretion in the estrogen-treated subjects is most likely due to reduced bone resorption and augmented calcium absorption within the nephron. Estrogens are also thought to influence citrate excretion, but the mechanism of this phenomenon has not been elucidated. This study is limited by its retrospective nature. It would be interesting to assess the response in postmenopausal patients before and after the institution of hormone replacement, and compare it to a group of non-stone-forming postmenopausal women. Although the diet in such a study would need to be standardized, calcium intake should not be restricted but remain at a level normally recommended for this patient cohort. The recently reported oncologic and cardiac problems associated with hormone replacement therapy should be considered before it is administered to postmenopausal stone-formers for the purpose of attenuating stone activity. ■

Reference

1. Dey J, Creighton A, Lindberg JS, et al. Estrogen replacement increased the citrate and calcium excretion rates in postmenopausal women with recurrent urolithiasis. *J Urol.* 2002;167:169.